

### ABSTRACT OF THE DISCLOSURE

The invention provides methods and compositions useful in pearl oyster cultivation. Polynucleotide and polypeptides relating to the *nacre* gene of *Pinctada margaritifera* are provided. Antibodies related to these polypeptides, and compositions comprising polynucleotides, polypeptides and/or antibodies of the invention are also provided. The invention provides methods of using these polynucleotides, polypeptides and antibodies, including methods related to pearl oyster cultivation. Arrays comprising polynucleotides, polypeptides and/or antibodies of the invention are also provided.